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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,596	07/23/2004	Mou-Shiung Lin	MEGP0027USA4	4595

27765 7590 11/16/2006

NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER

MATTHEWS, COLLEEN ANN

ART UNIT PAPER NUMBER

2811

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/710,596	Applicant(s) LIN, MOU-SHIUNG	
	Examiner Colleen A. Matthews	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's election with traverse of Species A, claims 43-84 in the reply filed on 09/04/2006 is acknowledged. The requirement is withdrawn because applicant's amendments to the claims read only on the elected embodiment.

Claim Rejections - 35 USC § 112

1. **Claim 69** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. **Claim 69** recites the limitation "'said silicon-nitride layer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 43, 48-55, 64, and 69-76** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 6,495,442 to Lin et al (Lin).
5. **Regarding claim 43 and 64**, Lin discloses a circuitry component comprising multiple MOS devices (not shown but described in col 4 lines 49-51), a semiconductor substrate (10), a metallization structure (14) over the semiconductor substrate, a

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passivation/silicon-nitride layer (18, col 5 lines 4-5) over the metallization structure, a circuit trace (26/20/21/36/38) over the passivation/silicon-nitride layer, and a resistor connected to the circuit trace (not shown but described in col 8 lines 15-19).

6. **Regarding claims 48-53 and 69-74**, Lin discloses a polymer layer (20) between the passivation/silicon-nitride layer (18) and the circuit trace (26/20/21/36/38) and on the circuit trace where the polymer layer comprises polyimide (PI) or benzocyclobutene (BCB), (col 5, lines 19 and 23-27).

7. **Regarding claims 54-55 and 75-76**, Lin discloses the circuit trace comprising a copper layer and a nickel layer over the copper layer (col 6 lines 55-58).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 44-46 and 65-67** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,495,442 to Lin et al (Lin) in view of U.S. Pub. No. 2003/0155570 to Leidy.

10. **Regarding claims 44-46 and 65-67**, Lin discloses the device of 43 and 65 as above. Lin fails to disclose the resistor comprising silicon with a dopant of boron, phosphorous, or arsenic. Leidy teaches a resistor comprising silicon and a dopant of boron, phosphorous, or arsenic (page 5, claim 26). It would have been obvious to one of

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ordinary skill in the art at the time the invention was made to modify Lin to have the resistor made of silicon and a dopant of boron, phosphorous, or arsenic as in Leidy in order to be able to predetermine the device resistivity (Leidy, page 3, paragraph 37).

11. **Claims 45, 47, 66 and 68** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,495,442 to Lin et al (Lin) in view of U.S. Pub. No. 2003/0183332 to Simila.

12. **Regarding claims 45, 47, 66 and 68**, Lin discloses the device of 43 and 65 as above. Lin fails to disclose the resistor comprising silicon with a dopant of boron, phosphorous, or arsenic. Simila a resistor comprising silicon and a dopant of phosphorous or gallium (paragraph 70). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lin to have the resistor made of silicon and a dopant of phosphorous or gallium as in Simila in order to be able to predetermine the device resistivity.

13. **Claims 54-63 and 75-84** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,495,442 to Lin et al (Lin) in view of U.S. Pat. No. 5,972,734 to Carichner et al. (Carichner).

14. **Regarding claims 54-63 and 75-84**, Lin discloses the device of 43 and 65 as above where the circuit trace comprises a nickel layer over a copper layer. Lin fails to disclose the circuit trace comprising a gold layer over the copper layer, a titanium layer under the copper layer, a titanium-containing layer comprising tungsten a chromium

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layer under the copper layer or where the metallization structure comprises aluminum.

Carichner teaches a circuit trace (212) comprises a nickel layer over a copper layer. Lin fails to disclose the circuit trace comprising a gold layer over the copper layer, a titanium layer under the copper layer, a titanium-containing layer comprising tungsten a chromium layer under the copper layer or where the metallization structure comprises aluminum (col 4 lines 41-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lin to include the different circuit trace and metallization layers of Charichner in order to optimize the device performance under thermal stress.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen A. Matthews whose telephone number is 571-272-1667. The examiner can normally be reached on Monday - Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

11/13/2006
CAM


Sara Crane
Primary Examiner